

AMENDMENTS TO THE CLAIMS

The listing of claims below replaces all prior versions of claims in the application.

Claim 1 (Currently Amended): A positioning apparatus comprising:

a brushless motor having a plurality of magneto-sensitive elements and a plurality of fixed coils;

a positioning mechanism to position a movable member within a predetermined movable range in accordance with rotation of the brushless motor; and

a motor control circuit to rotate a rotor of the brushless motor by sequentially supplying [[a]] driving pulses to a plurality of said fixed coils of the brushless motor;

wherein the motor control circuit comprises:

driving pulse generating means to generate the driving pulse,

present stage number detecting means to detect a present stage number of to which a current angular position of the rotor belongs in accordance with ~~an~~ output signals from at least one said magneto-sensitive device elements of the brushless motor,

initialization means to move the movable member to at least a forward traveling limit or a backward traveling limit within the movable range so as to set the ~~rotor~~ detected present stage number as a forward traveling limit stage number or a backward traveling limit stage number when the movable member reaches the forward traveling limit or the backward traveling limit, and

speed reduction means to reduce a rotating speed of the ~~brushless motor rotor~~ by reducing power ~~of~~ carried by the driving pulses when the ~~rotor~~ detected present stage number is equal to

either one of the forward traveling limit stage number and the backward traveling limit stage number.

Claim 2 (Original): The positioning apparatus according to claim 1, wherein the speed reduction means reduces the rotating speed of the brushless motor when the rotor present stage number is equal to a stage number that is less than one of the forward traveling limit stage number and the backward traveling stage number by at least one.

Claim 3 (Original): The positioning apparatus according to claim 1, wherein the driving pulse comprises a series of a plurality of pulses, and the speed reduction means issues a command to make each of the plurality of pulses have a reduced duty ratio.

Claim 4 (Original): The positioning apparatus according to claim 1, wherein the rotor present stage number corresponds to one of six control stage numbers determined from a combination of output signals from three magneto-sensitive devices.

Claim 5 (Original): The positioning apparatus according to claim 1, wherein the magneto-sensitive device is a Hall sensor.

Claim 6 (Previously Presented): The positioning apparatus according to claim 1, wherein at least three magneto-sensitive devices are provided around the brushless motor.

Claim 7 (Original): The positioning apparatus according to claim 1, wherein the movable member is a gear ratio determining member of an automatic transmission of a vehicle.

Claim 8 (Original): The positioning apparatus according to claim 1, wherein the stage number increments when the rotor turns through 60 degrees.

Claim 9 (Currently Amended): A positioning apparatus comprising:

a brushless motor having a plurality of magneto-sensitive elements and a plurality of fixed coils;

a positioning mechanism to position a movable member within a predetermined movable range in accordance with rotation of the brushless motor; and

a motor control circuit to rotate a rotor of the brushless motor by sequentially supplying [[a]] driving pulses to a plurality of said fixed coils of the brushless motor;

wherein the motor control circuit comprises:

a driving pulse generator to generate the driving pulses,

a present stage number detector to detect a present stage number ~~of~~ to which a current angular position of the rotor belongs in accordance with ~~an~~ output signals from ~~at least one said magneto-sensitive device elements of the brushless motor,~~

an initializer to move the movable member to at least a forward traveling limit or a backward traveling limit within the movable range so as to set the ~~rotor~~ detected present stage number as a forward traveling limit stage number or a backward traveling limit stage number when the movable member reaches the forward traveling limit or the backward traveling limit, and

a speed reducer to reduce a rotating speed of the ~~brushless motor rotor~~ rotor by reducing power

of carried by the driving pulses when the ~~rotor~~ detected present stage number is equal to either one of the forward traveling limit stage number and the backward traveling limit stage number.

Claim 10 (Original): The positioning apparatus according to claim 9, wherein the speed reducer reduces the rotating speed of the brushless motor when the rotor present stage number is equal to a stage number that is less than one of the forward traveling limit stage number and the backward traveling stage number by at least one.

Claim 11 (Original): The positioning apparatus according to claim 9, wherein the driving pulse comprises a series of a plurality of pulses, and the speed reducer issues a command to make each of the plurality of pulses have a reduced duty ratio.

Claim 12 (Original): The positioning apparatus according to claim 9, wherein the rotor present stage number corresponds to one of six control stage numbers determined from a combination of output signals from three magneto-sensitive devices.

Claim 13 (Original): The positioning apparatus according to claim 9, wherein the magneto-sensitive device is a Hall sensor.

Claim 14 (Previously Presented): The positioning apparatus according to claim 9, wherein at least three magneto-sensitive devices are provided around the brushless motor.

Claim 15 (Original): The positioning apparatus according to claim 9, wherein the movable member is a gear ratio determining member of an automatic transmission of a vehicle.

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Claim 16 (Original): The positioning apparatus according to claim 9, wherein the stage number increments when the rotor turns through 60 degrees.